

(April 5, 2004)

## Traffic Signal Standards

Traffic signal standards shall be furnished and installed in accordance with the methods and materials noted in the applicable Standard Plans, pre-approved plans, or special design plans.

All welds shall comply with the latest AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals. Welding inspection shall comply with Section 6-03.3(25)A Welding Inspection.

Hardened washers shall be used with all signal arm connecting bolts instead of lockwashers. All signal arm AASHTO M 164 connecting bolts shall be tightened to 40 percent of proof load.

Traffic signal standard types and applicable characteristics are as follows:

Type PPB      Pedestrian push button posts shall conform to Standard Plan J-7a or to one of the following pre-approved plans:

<u>Fabricator</u>	<u>Drawing No.</u>
Northwest Signal Supply Inc.	NWS 3530 or NWS3530B
Valmont Ind. Inc.	DB00655 Rev. B
Ameron Pole Prod. Div.	M3723 Rev. D

Type PS      Pedestrian signal standards shall conform to Standard Plan J-7a or to one of the following pre-approved plans:

<u>Fabricator</u>	<u>Drawing No.</u>
Northwest Signal Supply. Inc.	NWS 3530 or NWS 3530B
Valmont Ind. Inc.	DB00655 Rev. B
Ameron Pole Prod. Div.	M3723 Rev. D or W3539
Union Metal Corp.	TA-10025 Rev. 11

Type I      Type I vehicle signal standards shall conform to Standard Plan J-7a or to one of the following pre-approved plans:

<u>Fabricator</u>	<u>Drawing No.</u>
Northwest Signal Supply Inc.	NWS 3530 or NWS 3530B
Valmont Ind. Inc.	DB00655 Rev. B
Ameron Pole	M3723 Rev. D or

1		Prod. Div.	W3539
2			
3		Union Metal Corp.	TA-10025 Rev. 11
4			
5	Type FB	Type FB flashing beacon standard shall conform to Standard	
6		Plan J-7a or the following pre-approved plan:	
7			
8		<u>Fabricator</u>	<u>Drawing No.</u>
9		Union Metal Corp.	50200-B58, sheets 1 & 2
10			
11		Valmont Ind. Inc.	DB00655 Rev. B
12			
13		Ameron Pole	W3539
14		Prod. Div.	
15			
16		Northwest Signal	NWS 3535 or NWS 3535B
17		Supply Inc.	
18			
19	Type RM	Type RM ramp meter standard shall conform to Standard Plan J-	
20		7a or the following pre-approved plan:	
21			
22		<u>Fabricator</u>	<u>Drawing No.</u>
23		Union Metal Corp.	50200-B58, sheets 1 & 2
24			
25		Valmont Ind. Inc.	DB00655 Rev. B
26			
27		Ameron Pole	W3539
28		Prod. Div.	
29			
30		Northwest Signal	NWS 3535 or NWS 3535B
31		Supply Inc.	
32			
33	Type II	Characteristics:	
34			
35		Luminaire mounting height	N.A.
36		Luminaire arms	N.A.
37		Luminaire arm length	N.A.
38		Signal arms	One Only
39			
40		Type II standards shall conform to one of the following pre-	
41		approved plans, provided all other requirements noted herein	
42		have been satisfied. Maximum (x) (y) (z) signal arm loadings in	
43		cubic meters are noted after fabricator.	
44			
45	Signal Arm		
46	<u>Length (max)</u>	<u>Fabricator-(x) (y) (z)</u>	<u>Drawing No.</u>
47			
48	19.8 m	Valmont Ind. Inc.-(81.95)	DB00625-Rev. D,
49			Shts. 1, 2 & 3
50			
51	19.8 m	Union Metal Corp. (82.12)	71026-B86 Rev. 4
52			Shts. 1, 2 & 3

1			
2	19.8 m	Ameron Pole Prod. Div.-	W3724-1 Rev. A &
3		(82.12)	W3724-2 Rev. C
4			
5	19.8 m	Northwest Signal-(79.35)	NWS 3500 Rev. 10/14/03
6		Supply Inc.	or NWS 3500B
7			Rev. 10/14/03
8			
9	13.7 m	American Pole(53.10)	WS-T2-L Rev. 1
10		Structures, Inc.	
11			
12	19.8 m	American Pole	WS-T2-H Rev. 1
13		Structures, Inc.(82.49)	
14			
15	Type III	Characteristics:	
16			
17		Luminaire mounting height	9.2 m,
18			10.7 m,
19			12.2 m,
20			or 15.2 m
21		Luminaire arms	One Only
22		Luminaire arm type	Type 1
23		Luminaire arm length (max.)	4.9 m
24		Signal arms	One Only
25			
26		Type III standards shall conform to one of the following pre-	
27		approved plans, provided all other requirements noted herein	
28		have been satisfied. Maximum (x) (y) (z) signal arm loadings in	
29		cubic meters are noted after fabricator.	
30			
31		Signal Arm	
32		<u>Length (max)</u>	<u>Fabricator-(x) (y) (z)</u>
33			<u>Drawing No.</u>
34	19.8 m	Valmont Ind. Inc.-(83.45)	DB00625-Rev. D,
35			Shts. 1, 2 & 3
36			and "J" luminaire arm
37			
38	19.8 m	Union Metal Corp. (82.12)	71026-B87 Rev. 4
39			Shts. 1, 2 & 3
40			
41	19.8 m	Ameron Pole-(82.12)	W3724-1 Rev. A &
42		Prod. Div.	W3724-2 Rev. C
43			and "J" luminaire arm
44			
45	19.8 m	Northwest Signal-(79.35)	NWS 3500 Rev. 10/14/03
46		Supply Inc.	or NWS 3500B
47			Rev. 10/14/03
48			
49	13.7 m	American Pole	WS-T3J-L Rev. 1, Shts. 1 & 2
50		Structures, Inc.(53.10)	
51			
52	19.8 m	American Pole	WS-T3J-H, Rev. 1, Shts. 1 & 2

1		Structures, Inc.(82.49)
2		
3	Type IV	Type IV strain pole standards shall be consistent with details in
4		the plans and Standard Plan J-7c or one of the following pre-
5		approved plans:
6		
7		<u>Fabricator</u> <u>Drawing No.</u>
8		Northwest Signal NWS 3520 or NWS 3520B
9		Supply Inc.
10		
11		Valmont Ind. Inc. 5000-4
12		
13		Ameron Pole M3650 Rev A
14		Prod. Div.
15		
16		Union Metal Corp. EA-10224, Rev. 6
17		
18		American Pole 9000-12-037 Rev. A
19		Structures, Inc.
20		
21	Type V	Type V combination strain pole and lighting standards shall be
22		consistent with details in the plans and Standard Plan J-7c or
23		one of the following pre-approved plans:
24		
25		<u>Fabricator</u> <u>Drawing No.</u>
26		Northwest Signal NWS 3520 or NWS 3520B
27		Supply Inc.
28		
29		Valmont Ind. Inc. 5000-4
30		
31		Ameron Pole M3650 Rev. A
32		Prod. Div.
33		
34		Union Metal Corp. EA-10225, Rev. 6, Shts. 1 & 2
35		
36		American Pole 9020-12-007 Rev. B
37		Structures, Inc.
38		
39		The luminaire arm shall be Type 1, 4.9 meters and the luminaire
40		mounting height shall be 12.2 meters or 15.2 meters as noted in
41		the plans.
42		
43	Type SD	Type SD standards require special design. All special design
44		shall be based on the latest AASHTO Standard Specifications for
45		Structural Supports for Highway Signs, Luminaires and Traffic
46		Signals and pre-approved plans and as follows:
47		
48		1. A 144.8 Kph wind loading shall be used.
49		
50		2. The Design Life and Recurrence Interval shall be 50
51		years for luminaire support structures exceeding 15.2

1		meters in height, and 25 years for all other luminaire
2		support structures.
3		
4	3.	Fatigue design shall conform to AASHTO Section 11,
5		Table 11-1 using fatigue category III.
6		
7	Complete calculations for structural design, including anchor bolt details, shall	
8	be prepared by a Professional Engineer, licensed under Title 18	
9	RCW, State of Washington, in the branch of Civil or Structural	
10	Engineering or by an individual holding valid registration in	
11	another state as a civil or structural Engineer.	
12		
13	All shop drawings and the cover page of all calculation submittals	
14	shall carry the Professional Engineer's original signature, date of	
15	signature, original seal, registration number, and date of	
16	expiration. The cover page shall include the contract number,	
17	contract title, and sequential index to calculation page numbers.	
18	Two copies of the associated design calculations shall be	
19	submitted for approval along with shop drawings.	
20		
21	Details for handholes and luminaire arm connections are	
22	available from the Bridges and Structures Office.	
23		
24	Foundations for various types of standards shall be as follows:	
25		
26	Type PPB	As noted on Standard Plan J-7a.
27	Type PS	As noted on Standard Plan J-7a.
28	Type I	As noted on Standard Plan J-7a.
29	Type FB	As noted on Standard Plan J-7a.
30	Type RM	As noted on Standard Plan J-7a.
31	Type II	As noted in the Plans.
32	Type III	As noted in the Plans.
33	Type IV	As noted in the Plans and Standard Plan J-7c.
34	Type V	As noted in the Plans and Standard Plan J-7c.
35	Type SD	As noted in the Plans.